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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,426	01/21/2004	Masahiko Mutoh	4468-008A	3228

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LOWE HAUPTMAN GILMAN & BERNER, LLP
Suite 300
1700 Diagonal Road
Alexandria, VA 22314

EXAMINER	
AHN, SAM K	
ART UNIT	PAPER NUMBER
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/760,426	MUTOH, MASAHIKO	
	Examiner	Art Unit	
	Sam K. Ahn	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-9,11,13,15,17 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7,8,11,13,15,17 and 20* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/679,079.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *012104,102606*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 13 and 14 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because the abstract should be written in a single paragraph, and figure number for publishing is not necessary. Furthermore, the description of the abstract does not appear to be consistent with the claims in the instant application. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claims 7-9,11,13,15,17 and 20 are objected to because of the following informalities: In claim 7, line 4, insert "wherein n and t are integers".

In claim 11, line 2, "spread signal spectrum spread" should be "spread spectrum signal".

In claim 13, line 2, define "W-CDMA".

In claim 15, line 4, insert "wherein n and t are integers".

In claim 17, line 4, insert "wherein n and t are integers".

In claim 20, line 4, insert "wherein n and t are integers".

Claims 8 and 9 directly depend on claim 7. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7,8,11,13,15,17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawahashi et al. US 5,774,494 (Sawahashi).

Regarding claim 7, Sawahashi teaches a correlation system (see Fig.2) comprising: a frequency adding means (47 in Fig.2) for receiving a reference signal RO (t) (CK1 at fc) and adding thereto a predetermined plurality n of frequency components (F1 - Fn) (adding frequency offset fd and negative fd to the received fc) to output a resultant reference signal R1 (t) - Rn(t) (outputting CK2 and CK3).

And although Sawahashi does not explicitly teach the limitations of an adder for receiving n reference signals R1 (t) - Rn(t) and a single said reference signal RO(t) as a base and adding them together to output a corrected reference signal R(t); and a correlator for taking a correlation between a measurement signal S(t) and said corrected reference signal R(t) to output a correlation output signal, Sawahashi teaches an adder (25 in Fig.2, wherein one skilled in the art would recognize that multitude of an adding function is equivalent to a multiplying function) receiving correlation results, wherein the correlation results are between a measurement signal (S_{2I} and S_{2Q}) and reference signal RO(t) from CK1 to output S_{3I} and S_{3Q}, between the measurement signal (S_{2I} and S_{2Q}) and R1(t) from CK2 to output S_{7I} and S_{7Q}, and between the measurement signal (S_{2I} and S_{2Q}) and Rn(t) from CK3 to output S_{8I} and S_{8Q} and adding the outputs together as the output of the correlator S_{5I} and S_{5Q}. Hence, although the difference between the claimed limitation and the teaching of Sawahashi is that the reference signals are added prior to presenting the result to the correlator, while Sawahashi teaches performing correlations based on the reference signals and adding the output of the correlators. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement as claimed. Applicant has not disclosed that adding the resultant signals prior to correlation provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with performing correlations based

on the reference signals and adding the output of the correlators because the result would be equivalent. The specification of the instant application on page 18 describes wherein the added resultant signals are correlated with the measurement signal, and Sawahashi teaches taking the reference signal CK1 and correlating (17 in Fig.2), taking the next reference signal R1(t) and correlating at 48 and next at 49 in Fig.2. The correlation results are added (25 in Fig.2), which would provide the same result as the Expression 2 on page 18 of the instant application. Therefore, it would have been obvious to one of ordinary skill in this art to modify the teaching of Sawahashi to obtain the invention as specified in the claim.

Regarding claim 8, Sawahashi further teaches wherein the frequency adding means multiplies the reference signal RO(t) by e^{-jwt} (CK2 and CK3, which is the frequency offset of CK1 of fc, which are fc + fd and fc – fd, respectively, hence one skilled in the art at the time the invention was made would recognize that frequency offset can be achieved by adding or subtracting frequency to the reference signal as taught by Sawahashi, or multiplying e^{-jwt}, which are well-known to one skilled in the art of providing equivalent result.

Regarding claim 11, Sawahashi further teaches wherein the measurement signal S(t) is a reception signal of a spread spectrum signal (note col.4, line 45 a

spread-spectrum communication receiver providing the spread spectrum signal to the receiver in Fig.2).

Regarding claim 13, Sawahashi further teaches wherein the measurement signal S(t) is a reception signal of a spread spectrum signal (note col.4, line 45 a spread-spectrum communication receiver providing the spread spectrum signal to the receiver in Fig.2) of a CDMA system (note col.2, line 1). And although Sawahashi does not explicitly teach that the signals is of a W-CDMA system, one skilled in the art at the time the invention was made would recognize that W-CDMA system and CDMA system both belong to the same family of implementing code division multiple access. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Sawahashi of supporting not only of CDMA system but also W-CDMA system for the purpose of increasing flexibility of the system supporting a more up to date technology.

Regarding claim 15, the claim is rejected as applied to claim 7 with similar scope.
Regarding claim 17, the claim is rejected as applied to claim 7 with similar scope.
Regarding claim 20, the claim is rejected as applied to claim 7 with similar scope.

Allowable Subject Matter

5. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and overcome the claim objections.

6. The following is a statement of reasons for the indication of allowable subject matter: present application discloses a CDMA receiver comprising frequency adding elements coupled to an adder and providing the output to a correlator for correlation output. Prior art teaches the limitations claimed, however, do not explicitly teach the further limitation wherein the frequency adding elements perform EXOR operation between the reference signal and each of the frequency components for the adder.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Suda US 6,741,667 B1 teaches a wireless receiver comprising plurality of correlator outputs combining the outputs of each of the correlators.

Takahashi et al. US 5,610,939 teach a digital correlator providing a correlation output based on a combined correlated signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn
Patent Examiner

1/22/07